REMARKS/ARGUMENTS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments, and the following remarks. Claims 1-3 are in the application.

The Examiner rejected claims 1-3 under 35 U.S.C. §103 as being unpatentable over Marshall et al. in view of Nishida et al. Applicants respectfully traverse.

Marshall et al. (GB 975 322) describes a sintered material based on iron that has nickel and boron in a wide range of amounts. In the present invention, it comes down decisively to the fact that a prealloy powder is used that contains nickel, boron, and iron, in which the boron content of the prealloy powder must be less than 10% by weight and the weight ratio of nickel to boron must be greater than 5. Marshall et al. ('322) discloses that nickel can be prealloyed with another metal but a prealloy of iron, nickel, and boron is excluded. For this reason, Marshall et al. ('322) by itself cannot anticipate the invention.

Nishida et al. (Effect of B on the Densification and the Mechanical Properties of Sintered Iron Powder Compacts, J. Japan Inst. Metals, Vol. 54, No. 10 (1990), pp. 1147-1153) is considered explicitly in the introduction to the specification of the invention. Nishida et al. shows that adding boron in the form of a prealloyed powder of iron, nickel, and boron, produces special benefits with respect to tensile strength, with the effects of the prealloy powder on the mechanical properties of sintered steel being examined with a proportion of the prealloy powder between 3 and 7 wt.% of the total mixture. It was found that a higher density of sintered steel could be achieved with increasing proportion of the prealloy powder at a given sintering temperature, as seen from Fig. 7 of Nishida et al. Furthermore, Fig. 6 of Nishida et al. shows that the proportion of liquid phase rises with increasing proportion of the prealloy powder. Since a liquid phase proportion of at least 9 vol.% has to be achieved for adequate density of the sintered steel, this means a proportion of prealloy powder that is greater than 3 wt.%. Nishida et al cannot anticipate the invention because a boron content in the total mixture of 0.3 to 0.7% results from a proportion of 3 to 7 wt.% prealloy powder with the given composition of the prealloy powder, which is distinctly higher

than the proportion of boron pursuant to the invention.

The Examiner states that it would have been obvious to one skilled in the art to use a prealloyed powder according to Nishida in Marshall et al. ('322) to arrive at the invention. However, Nishida et al. necessarily assumes a proportion of the prealloyed powder of at least 3 wt.% to produce the targeted tensile strength. It can therefore not be obvious in any way from Nishida et al to use a smaller proportion of the prealloyed powder of iron, nickel, and boron, because the tensile strength then obviously cannot be achieved.

It is surprising that despite an appropriately high tensile strength, impact resistance can be decisively improved if the boron content of the powder mixture is between 0.03 and 0.2 wt.% when the boron fraction of the prealloy powder is below 10 wt.%. Coalescence of local boride regions is sufficiently hindered by the limitations specified in Claim 1 to be able to suppress the development of a continuous boride network. This effect is disclosed neither by Marshall et al. ('322) nor by Nishida et al., and also cannot be shown by a combination of these citations, inasmuch as a rational interpretation of Nishida et al

necessarily has to lead to raising the boron fraction from Marshall et al. ('3x22) beyond the limits pursuant to the invention.

Accordingly, Applicants submit that claims 1-3 are patentable over the cited references, taken either singly or in combination. Early allowance of the claims is respectfully requested.

Respectfully submitted,
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I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 18, 2007.

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